
303(d) Sediment Listing
Policy Focus
What are the issues/impacts of 2013 rule change on 303(d) sediment listings?
December 5, 2016
DEPARTMENT OF ECOLOGY

What are the goals for today?

- Provide a brief overview of the Sediment Management Standards framework.
- Describe the changes to the rule in 2013 (Part III, IV and V).
- Discuss importance of equivalence between SMS listing process and WQ listing process.
- Discuss the potential impacts of the changes to the SMS rule on the 303(d) listing process (Category 5 and 4b focus).
- Provide brief examples of the process for listing and delisting sediment grids.

Overview of Sediment Management Standards (SMS) framework

Overall purpose of the SMS.

Set standards for sediment quality (both numeric and narrative);

- Apply the standards to reduce pollutant discharges; and
- Provide a decision process for the cleanup of contaminated sediment sites.

There are 6 sections of the SMS:

Part I: General Information.

Part II: Definitions.

Part III: Sediment Quality Standards (SQS).

Part IV: Sediment Source Control.

Part V: Sediment Cleanup Standards

Part VI: Sampling and Testing Plans/Recordkeeping.

Overview of Sediment Management Standards (SMS) Framework

- Benthic protection was the basis of the Rule:
  - Uses Bioassay testing as definitive tool
  - Bioassay overrides chemistry
- Numerical Chemistry Criteria:
  - … are based upon benthic effects concentrations.
    Chemistry is a good indicator of impact, but bioassay remains the definitive assessment tool.
- Framework consists of a two-tiered level:
  - SQS/SCO (Sediment Quality Standards/Sediment Cleanup Objectives)
  - CSL (Cleanup Screening Level)
    NOTE: CSL in Part V is equivalent to SIZmax in Part IV
- What is the "two-tiered" framework?
  - SQS/SCO: Lower tier (No Adverse Effects)
  - CSL/SIZmax: Upper tier (Minor Adverse Effects)

Overview of Sediment Management Standards (SMS) Framework

- What is the Lower Tier of the "two-tiered" framework?

SQS/SCO: **Lower tier (No Adverse Effects):** The no adverse effects level includes:
1) The Sediment Quality Standards (SQS) criteria in Part III of the rule, WAC 173-204-320.
2)The Sediment Cleanup Objective (SCO) criteria in Part V of the rule, WAC 173-204-562 (Tables III and IV) and 173-204-563 (Tables VI and VII).

The no adverse effects level is defined as impact to the benthic community, not to individual benthic animals or species.

Overview of Sediment Management Standards (SMS) Framework

- What is the Upper Tier of the "two-tiered" framework?

CSL/SIZmax: **Upper tier (Minor Adverse Effects):**The minor adverse effects level includes:
1) The Sediment Impact Zone Maximum (SIZMax) criteria in Part IV of the rule, WAC 173-204-420.
2) The Cleanup Screening Level (CSL) in Part V of the rule, WAC 173-204-562 (Tables III and IV) and 173-204-563 (Tables VI and VII).

The no adverse effects level is defined as impact to the benthic community, not to individual benthic animals or species.

Overview of Sediment Management Standards (SMS) Framework

Two Major Parts to the Rule:

1) **WQ Standards**
2) **Cleanup Standards**

Different terms are used in each section of the NEW rule but are equivalent criteria.

Tier	***WQ Terms***	***Cleanup Terms***
Lower tier =	SQS (Sediment Quality Standards)	= SCO (Sediment Cleanup Objective)
Upper tier =	SIZmax (Sediment Impact Zone maximum)	= CSL (Cleanup Screening Level)

New cleanup term

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Overview of Sediment Management Standards (SMS) Framework

Why is it highly important for cleanup and listing criteria to be equivalent?

Provides the same listing criteria and actionable levels for WQ and SMS Cleanup prioritization (TMDL alternative = SMS Cleanup criteria).

Two Major Parts to the Rule:

1) **WQ Standards**
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Tier	***WQ Terms***	***Cleanup Terms***
Lower tier =	SQS (Sediment Quality Standards)	= SCO (Sediment Cleanup Objective)
Upper tier =	SIZmax (Sediment Impact Zone maximum)	= CSL (Cleanup Screening Level)

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Overview of Sediment Management Standards (SMS) Framework

How are Sites identified under the SMS that exceed actionable levels?

WAC 173-204-520 Hazard assessment and site identification.
(1) Purpose. A hazard assessment shall be performed to gather existing and available information to further characterize each station cluster of potential concern identified per WAC 173-204-510.

Identification of cleanup sites. To identify cleanup sites, the department shall use all available information of acceptable quality gathered from the hazard assessment to evaluate station clusters of potential concern identified pursuant to WAC 173-204-510(2). For the purpose of identifying a cleanup site per the procedures of this subsection, three stations with the *highest chemical concentration for any particular chemical or the highest degree of biological effects as identified in WAC 173-204-562 or 173-204-563, as applicable, are selected from a station cluster of potential concern.*

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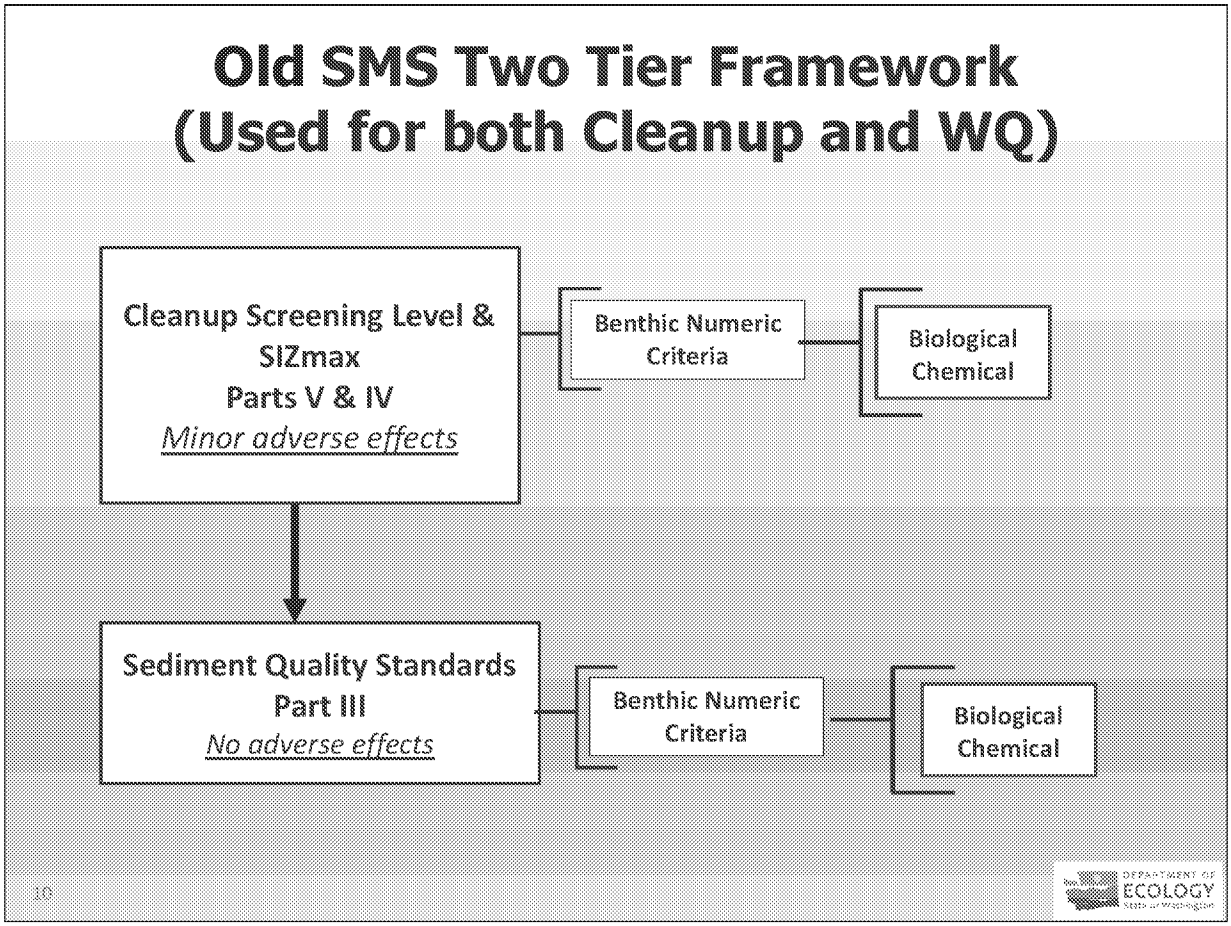


Sediment Quality Standards: Lower Tier

(16) "No adverse effects" means a level of effects that:

(a) Has been determined by rule by the department, except in cases subject to WAC 173-204-110(6); and

(b) Meets the following biological criteria:

(i) No acute or chronic adverse effects to biological resources as measured by a statistically and biologically significant response relative to reference or control,

as appropriate, in any appropriate biological test as defined in WAC 173-204-200(3); and

(ii) No acute or chronic adverse biological effect per (b)(i) of this subsection as predicted by exceedance of an appropriate chemical or other deleterious substance standard, except where the prediction is overridden by direct biological testing evidence pursuant to (b)(i) of this subsection; and

(iii) Does not result in significant human health risk as predicted by exceedance of an appropriate chemical, biological, or other deleterious substance standard.

Cleanup Screening Level (CSL) and SIZmax: Upper tier

(15) "Minor adverse effects" means a level of effects that:

(a) Has been determined by rule by the department, except in cases subject to WAC 173-204-110(6); and

(b) Meets the following criteria:

(i) An acute or chronic adverse effect to biological resources as measured by a statistically and biologically significant response relative to reference or control, as appropriate, in no more than one appropriate biological test as defined in WAC 173-204-200(3); or

(ii) A statistically and biologically significant response that is significantly elevated relative to reference or control, as

appropriate, in any appropriate biological test as defined in WAC 173-204-200(3); or
(iii) Biological effects per (b)(i) or (ii) of this subsection as predicted by exceedance of an appropriate chemical or other deleterious substance standard, except where the prediction is overridden by direct biological testing evidence pursuant to (b)(i) and (ii) of this subsection; and
(c) Does not result in significant human health risk as predicted by exceedance of an appropriate chemical, biological, or other deleterious substance standard.

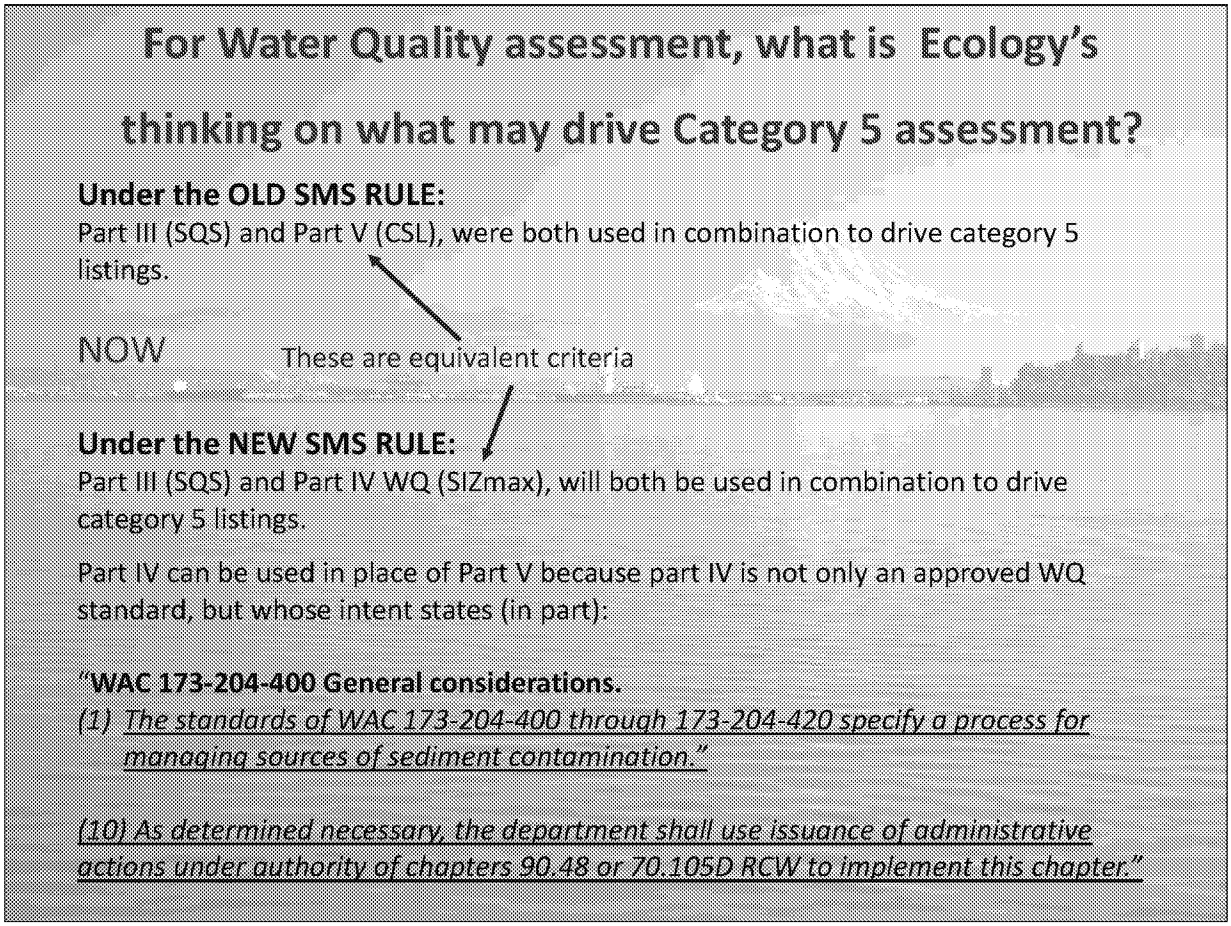
2013 SMS Rule Changes

What parts of the old SMS rule applied to the WQ Assessment?

The entire SMS was approved by EPA as a WQ standard so all parts were used: Part I, Part II, Part III (SQS), Part IV (SIZmax), Part V (CSL)

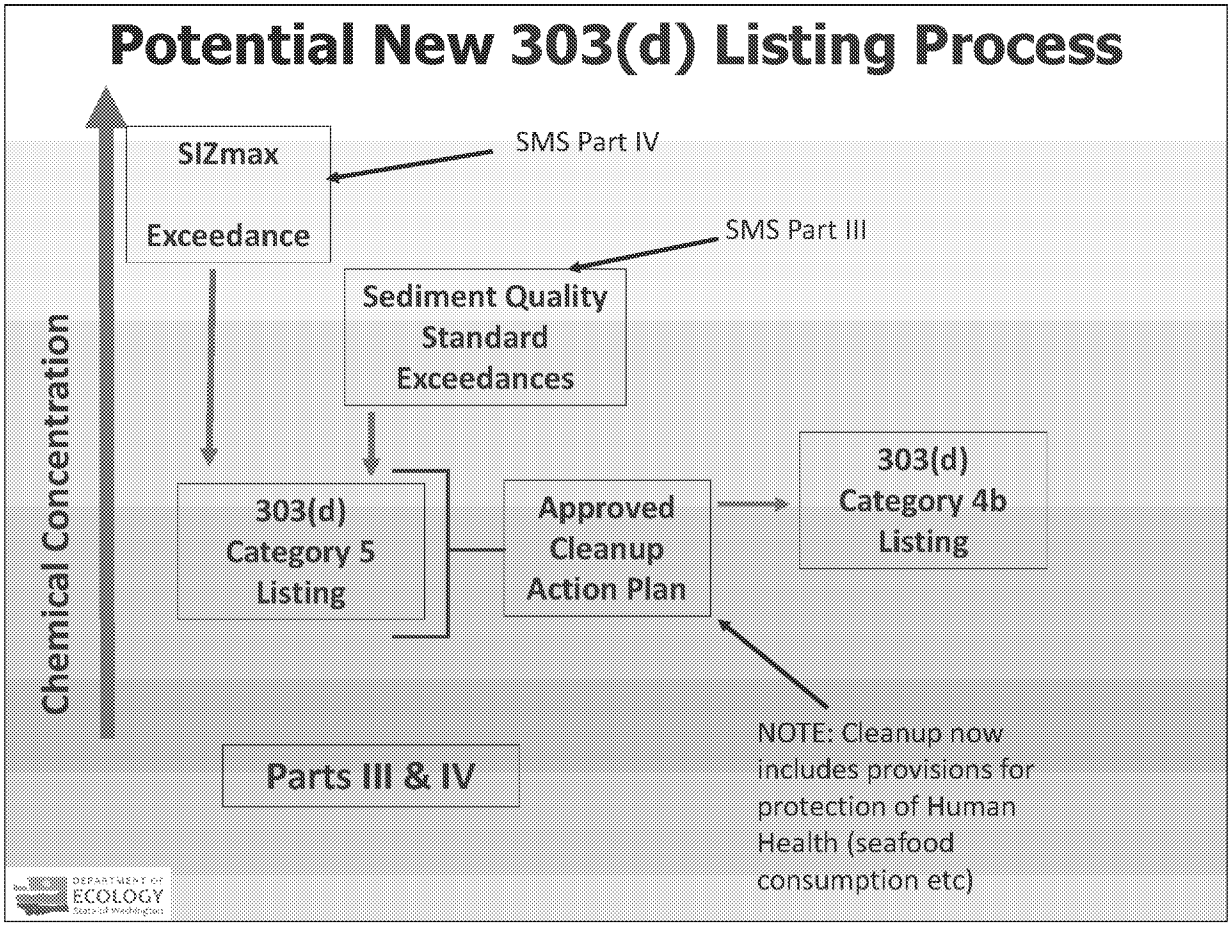
Based on the amended SMS rule what parts of the new rule are considered a WQ standard?

- Part I Part II as before
- Part III SQS, Part IV Based on two tiers: SQS and SIZmax
- Part V not adopted as WQ standards and therefore no longer used for WQ listing, just for cleanup (=Alternative to TMDL)



PART IV
SEDIMENT SOURCE CONTROL
WAC 173-204-400 General considerations.
(1) The standards of WAC 173-204-400 through 173-204-420 specify a process for managing sources of sediment contamination. These procedures include: (a) Evaluating the potential for a waste discharge to create a sediment impact; (b) Requiring application for a sediment impact zone authorization; (c) Verifying whether a discharge has received all known, available and reasonable methods of prevention, control, and treatment prior to discharge, and/or application of best management practices; (d) Analysis and verification of the potential sediment impact; (e) Determining whether the sediment impact zone would meet maximum allowable contamination requirements; (f) Evaluating the proposed sediment impact zone in consideration of locational criteria; (g) Design and/or constrain the sediment impact zone to be as small, and with the least contamination, as practicable; (h) Public review of the proposed sediment impact zone authorization; (i) Issuance of the sediment impact zone authorization with provisions for maintenance and closure; and (j) Reducing and eventually eliminating the sediment impact zone via renewals and modifications of a sediment impact zone authorization. (2) Permits and other authorizations of wastewater, storm water, and nonpoint source discharges to surface waters of the state of Washington under authority of chapter 90.48 RCW shall be conditioned so that the discharge receives all known, available and reasonable methods of prevention, control, and treatment, and best management practices prior to discharge, as required by chapters 90.48, 90.52, and 90.54 RCW. The department shall provide consistent guidance on the collection, analysis and evaluation of wastewater, receiving-water, and sediment samples to meet the intent of this section using consideration of pertinent sections of the Department of Ecology Permit Writers' Manual, as amended, and other guidance approved by the department. (3) As determined necessary, the department shall require any person who proposes a new discharge to evaluate the potential for the proposed discharge to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. (4) As determined necessary, the department

shall require existing permitted discharges to evaluate the potential for the permitted discharge to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. (5) Within permits authorizing existing discharges to surface waters of the state of Washington, the department may specify appropriate locations and methodologies for the Sediment Management Standards WAC 173-204-400 Adoption Date: February 22, 2013 Page 40 collection and analysis of representative samples of wastewater, receiving-water, and sediments to evaluate the potential for the discharge to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. (6) In establishing the need for, and the appropriate, individual permit monitoring conditions, the department shall consider multiple factors relating to the potential for a discharge to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 including but not limited to: (a) Discharge particulate characteristics; (b) Discharge contaminant concentrations, flow, and loading rate; (c) Sediment chemical concentration and biological effects levels; (d) Receiving water characteristics; (e) The geomorphology of sediments; (f) Cost mitigating factors such as the available resources of the discharger; and (g) Other factors determined necessary by the department. (7) As determined necessary to ensure the wastewater discharge does not cause a violation of the applicable standards of WAC 173-204-320 through 173-204-340, except as authorized by the department under WAC 173-204-415, Sediment impact zones, the department shall stipulate permit terms and conditions which include wastewater discharge average and maximum mass loading per unit time, and wastewater discharge average and maximum chemical concentrations within new and existing facility permits authorizing wastewater discharges to surface waters of the state of Washington. (8) As determined necessary, the department shall modify wastewater discharge permits whenever it appears the discharge causes a violation, or creates a substantial potential to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, as authorized by RCW 90.48.520. (9) To meet the intent of this section, the sediment quality standards of WAC 173-204-320 through 173-204-340 and the sediment impact zone standards of WAC 173-204-415 through 173-204-420 are not considered to be federal discharge permit effluent limits subject to antibacksliding requirements of the federal Clean Water Act. Discharge permit sediment monitoring and sediment impact zone compliance requirements may be used to establish effluent limits sufficient to meet the standards of this chapter. (10) As determined necessary, the department shall use issuance of administrative actions under authority of chapters 90.48 or 70.105D RCW to implement this chapter. (11) Wastewater dilution zones. Water quality mixing zones authorized by the department pursuant to chapter 173-201A WAC, Water quality standards for surface waters of the state of Washington, do not satisfy the standards of WAC 173-204-415, Sediment impact zones. (12) For the sediment source control standards of WAC 173-204-400 through 173-204-420, any and all references to violation of, potential to violate, exceedance of, or potential to exceed the applicable standards of WAC 173-204-320 through 173-204-340 shall also apply to the antidegradation and designated use policies of WAC 173-204-120. Any exceedances or Sediment Management Standards WAC 173-204-400 Adoption Date: February 22, 2013 Page 41 potential exceedances of the antidegradation or designated use policies of WAC 173-204- 120 shall meet the applicable requirements of WAC 173-204-400 through 173-204-420. (13) Under no circumstances shall the provisions of sediment source control standards WAC 173-204-400 through 173-204-420 be construed as providing for the relaxation of discharge permit requirements under other authorities including, but not limited to, chapter 90.48 RCW, the Water Pollution Control Act, chapter 90.54 RCW, the Water Resources Act of 1971, and the Federal Water Pollution Control Act of 1972 and amendments. [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-400, filed 12/29/95, effective 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and


Potential New 303(d) Listing Process
Chemical Concentration
SIZmax
Exceedance
SMS Part IV
SMS Part III
Sediment Quality
Standard
Exceedances
303(d)
Category 5
Listing
Approved
Cleanup
Action Plan
303(d)
Category 4b
Listing
NOTE: Cleanup now includes provisions for protection of Human Health (seafood consumption etc)
Parts III & IV
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What should drive listings in Category 4b and what are issues that will need to be resolved?

- Part III and IV can potentially be used as a "two-tiered" framework to place waters in Cat 4B.
- Purpose of clean up under water quality standards is to protect benthic use. Since SIZmax (Part IV) and CSL (Part V) criteria are identical, the listing process would not need to change for how Cat 4bs are determined. Because clean up addresses BOTH human health under the SMS as well as benthic protection, benthic protection is assured.
- The sediment 4b cleanups would address restoring benthic uses and human health issues related to sediment impacts and risks.

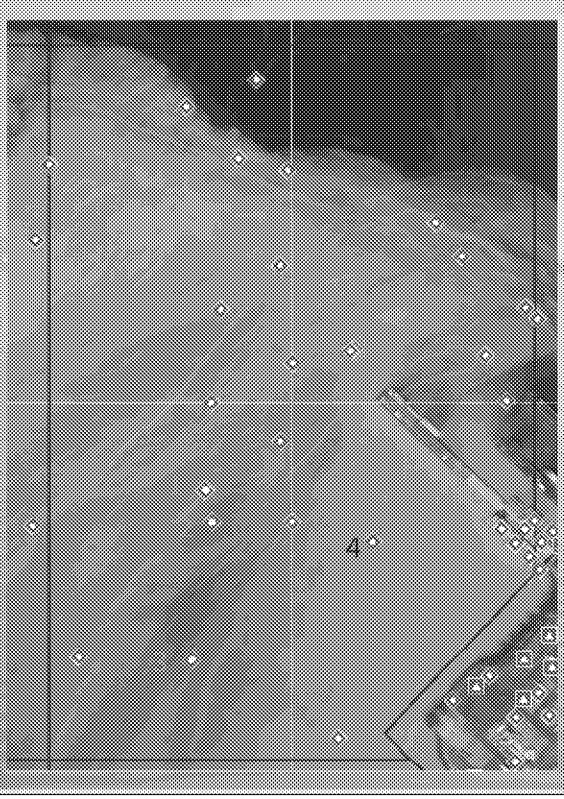
Are there any impacts to the 303(d) listing process resulting from the 2013 SMS rule changes?

Based upon the current rule paradigm:

- Former Part V (CSL) is equivalent to Part IV (SIZmax) then the listing process to Category 5 would not change from previous process.

- Actionable levels remain equivalent between SMS Site Cleanup requirements (TMDL alternative) and WQ listing process.

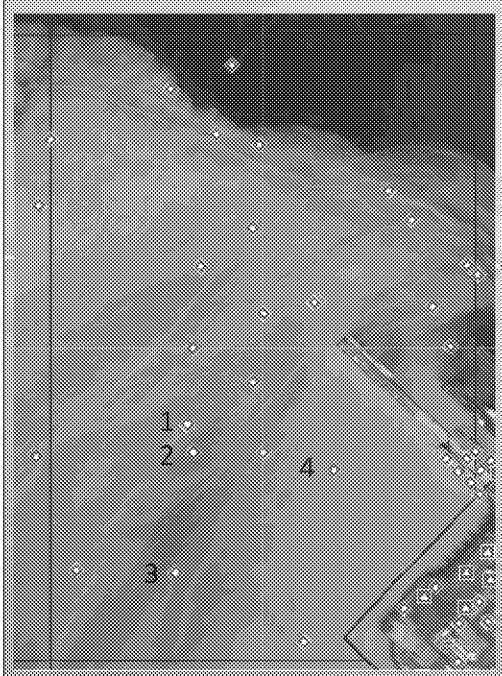
Example of Category 5 Listing Process (Chemistry)



Station	Concentration (Arsenic) SQS= 57ppm SIZmax= 93ppm	Chemistry
1	65	SQS
2	72	SQS
3	125	SIZmax
¼ Grid Average	87	SQS
4	60	SQS

Average of 3 highest stations is 87: less than SIZmax but greater than SQS so ¼ grid is SQS

Example of Category 5 Listing (Bioassays)

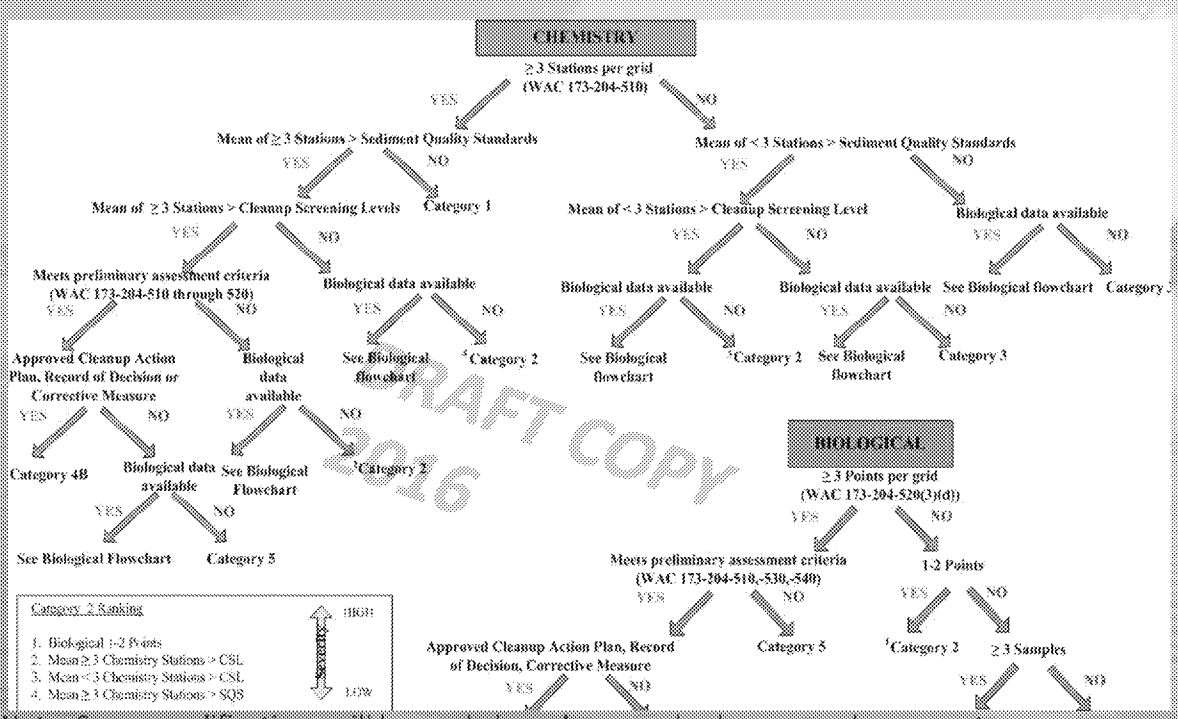


Station	Bioassay	
	Station Exceeds?	Points (Bioscore)
1	SIZmax	2
2	SQS	1
3	SQS	1
¼ Grid Total Points	Σ (sum)	4
		Grid = Cat 5
4	SQS	

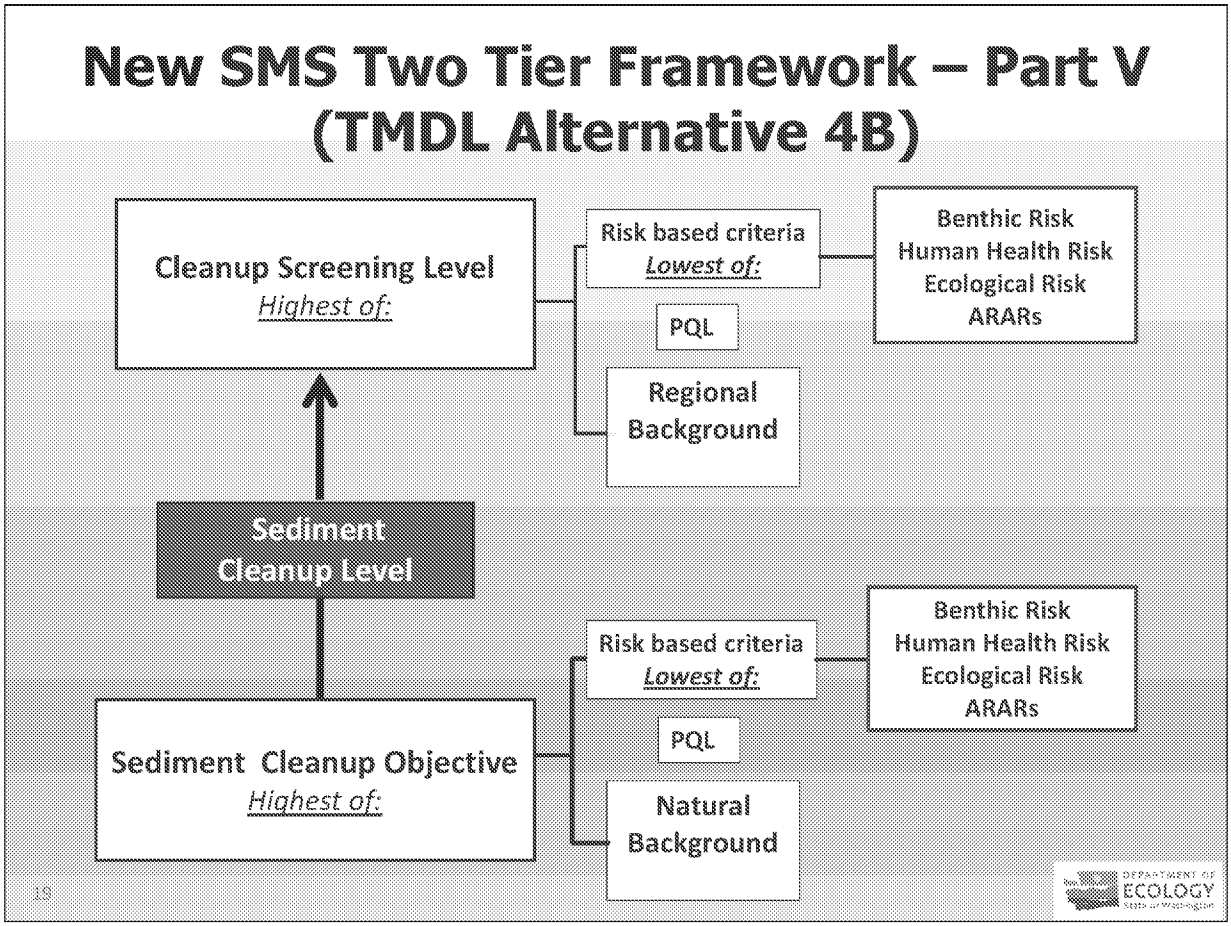
Note: If ¼ grid bioassay assessment results in total points (Bioscore) of 3 or greater then ¼ grid is listed in Category 5

NOTE: Bioassays override chemistry.

2006 Flowchart Showing Listing Process



Note: Some modifications will be made based upon rule changes and comments, errors/omissions



Cleanup standards based on benthic risk, human health risk, and upper trophic level risk, PQL and background.

References

Sediment Management Standards *Chapter 173-204 WAC* Revised February 2013, Effective September 2013 Publication no. 13-09-055 Department of Ecology's website at https://fortress.wa.gov/ecy/publications/SummaryPages/1309055.html

Sediment Cleanup Users Manual II (SCUM II). Publication number 12-09-057. This guidance document was originally published in 1991 and a preliminary draft was completed in August 2012. This preliminary draft was posted to Ecology's website during the SMS draft rule public comment period in 2012. For information on the updated guidance document, go here: http://www.ecy.wa.gov/programs/tcp/smu/sed_standards.htm

Fish Consumption Rates Technical Report. Publication number 12-09-058. You may access information on the development of this technical report and the final report here: http://www.ecy.wa.gov/programs/tcp/regs/fish/2012/FCR-doc.html


Questions?